

REMARKS

Claims 1, 11, 14, 17, 21 and 29 are amended. Now in the case are claims 1-29, of which claims 1, 21 and 29 are independent.

This Response and Amendment is submitted pursuant to 37 C.F.R. 1.34 wherein the undersigned, by signing as a registered practitioner before the USPTO, represents that he is authorized to conduct prosecution of the above identified case. The above identified application has been reassigned to a new assignee, who has authorized the undersigned to conduct prosecution of the case. Documentation of the chain of title in a form appropriate for submission for recordation by the USPTO is being assembled and is to be timely submitted, along with a formal Power of Attorney from the new assignee to the undersigned, to the USPTO.

The Examiner is thanked for forwarding to the undersigned via facsimile a copy of one of the references relied upon by the Examiner, namely, the paper entitled "A Novel Intra-Cavity For Efficient Cascaded Raman Generation Using WDM Couplers" by Chang et al.

Request for Three Month Extension of Time

Applicants hereby request a Three Month Extension of Time pursuant to 37 CFR 1.136(a) to respond to the outstanding Office Action, extending the time for reply to October 1, 2003. Applicants qualify as a Small Entity, and understand that the fee for the Three Month Extension of Time is \$465.00. A check (number 105726) for \$465 payable to the Commissioner for Patents is enclosed. Authorization is granted to charge any underpayment, or credit any overpayment, as appropriate, to Deposit Order Account No. 50-2343. A charge of \$10 may be required due to fee increase effective October 1, 2003.

Drawings

As requested by the Examiner, formal drawings will be submitted by the Applicant upon allowance of the case.

The drawings are objected to for failing to show every feature recited in the claims. More specifically, the Examiner states at page 2, paragraph 2 of the outstanding Office Action that claim 1 recites a fiber grating in a second fiber, wherein a first fiber is devoid of a fiber Bragg grating, and that the drawings, such as, for example, FIGURE 1, show the first fiber comprising a grating.

It is respectfully submitted that the drawings, for example, FIGURE 1, show every feature of the invention as claimed. Claim 1 (amended claim 1 is discussed for purposes of illustration) recites that the *second* fiber comprises a fiber Bragg grating *being capable of substantially reflecting energy at a predetermined wavelength*, wherein the *first* fiber is devoid of a fiber Bragg grating substantially reflecting energy *at the predetermined wavelength*.

Thus claim 1 does not require that the first fiber be devoid of *any* grating. Claim 1 recites that the first fiber be devoid of a grating substantially reflecting energy *at the predetermined wavelength*, where the second fiber comprises a grating *being capable of substantially reflecting energy at a predetermined wavelength*. FIGURE 1 does not show a grating for reflecting energy at the predetermined wavelength. The grating 150 in FIGURE 1 reflects pump energy. See paragraph 15 of the published U.S. application (US 2002/0126714 A1).

Specification

The Examiner objects to the Abstract as not descriptive and not stating that which is new in that art to which the invention pertains. An amended Abstract is submitted herewith. It is noted that according to MPEP § 608.01(b) the Abstract is not to be used in interpreting the scope of the claims.

Claim Rejections under 35 U.S.C. § 112

Claims 1-29

Claims 1 – 29 are rejected as indefinite. Although it is not agreed that the claims are indefinite as originally written, as one of ordinary skill in the art, upon reading the claims, understands the nature of the invention, amendment is made to the preamble to add “fiber laser” before “system.” The amendment is understood to indicate an intended use for the claimed invention, but to otherwise be non-limiting. Reconsideration and withdrawal of the rejection is respectfully requested.

Claim 14

Claim 14 is rejected for insufficient antecedent basis for the term “the second predetermined energy.” Claim 14 depends from claim 11. Claim 11 is amended to recite “and a second fiber Bragg grating being capable of substantially reflecting energy at a second predetermined wavelength different than the first predetermined wavelength” and claim 14 is amended to recite “wherein the second predetermined ~~energy~~ wavelength comprises energy having a Stoke shifted wavelength. ” No new matter is added. See, for example, FIGURE 2 and the description thereof at paragraphs 22-26 of the published application (US 2002/0126714 A1). Reconsideration and withdrawal of the rejection is respectfully requested.

Claim 16

Claim 16, which recites “the system of claim 15 wherein the second WDM is between the energy source and the third fiber grating”, is rejected as indefinite for use of the word “between”. The Examiner alleges that “between” does not

provide sufficient structural relationships/connections “to properly conform the laser apparatus” (Outstanding Office Action, numbered paragraph 6).

While it is not clear what is meant by “to properly conform the laser apparatus,” MPEP §§ 2173.01 – 2173.02 do indicate criteria by which a claim is judged to be definite. Applicants can be their own lexicographers, and can define in the claims what they regard as their invention essentially in whatever terms they choose so long as the terms are not used in ways that are contrary to accepted meanings in the art. Functional language, alternative expressions, negative limitations, or any style of expression or format of claim which makes clear the boundaries of the subject matter for which protection is sought. (MPEP § 2173.01). The degree of particularity and distinctness need only be *reasonable*, and the question is whether threshold requirements for particularity and distinctness are met, not whether an examiner may consider that there is more suitable language available. (MPEP § 2173.02). Claims are analyzed not in a vacuum, but in light of usage in the art and the content of the application disclosure. If the claim apprises one of ordinary skill of its scope, the claim is definite under §112, paragraph 2. (Id.)

It is respectfully submitted that the term “between” is definite in that one of ordinary skill, in light of the art and the application disclosure, can readily ascertain the scope of the claims. For example, with reference to FIGURE 2 of the present application, there is shown an energy source 110, a second WDM 135, and a fiber grating 150. Clearly there is an optical path from the energy source 110 to the grating 150 and the second WDM 135 is “between” the energy source 110 and the grating 150, as is the other WDM 130.

To require recitation of some sort of direct connection of optical devices would unduly limit patentees to very narrow claims, as there are any number of optical devices that can be interposed in an optical path between other optical devices as a matter of design choice. For example, it is common in many designs

to interpose an isolator between devices to stop back reflections, or to interpose a coupler to tap power for monitoring of a power level.

Reconsideration and withdrawal of the rejection is respectfully requested.

Claim 17

Claim 17 is rejected as indefinite for insufficient antecedent basis for the term "the third fiber grating." Claim 17 is amended to delete "third" and insert - second-. No new matter is added. Original lines 1 - 2 of claim 17 recite a second fiber grating. Amended claim 17 is clear. Reconsideration and withdrawal of the rejection is respectfully requested.

Claim 18

Claim 18 is rejected as indefinite based on the recitation of the phrase "wherein the WDM is between the energy source and the second fiber Bragg grating." It is again maintained by the Examiner that "the word 'between' does not provide sufficient structural relationships/connections to properly conform the laser apparatus." For the reasons discussed above regarding claim 16, claim 18 is deemed to be definite. Reconsideration and withdrawal of the rejection is respectfully requested.

Claim 29

Claim 29 is rejected as indefinite based on the recitation of the phrase "wherein the space between the second pair of gratings is devoid of a grating in the third pair of gratings." Claim 29 is amended to recite "wherein no grating of the third pair is located between the gratings of the second pair." No new matter is added. See, for example, original claim 29 as well as FIGURES 5 and 6, and the discussion thereof in the specification, such as paragraphs 35 -39 of the published application (US 2002/0126714 A1). Reconsideration and withdrawal of the rejection is respectfully requested.

Claim Rejections Under 35 U.S.C. §§ 102-103

Claims 1-10

Claims 1-10 are rejected under § 102(e) as anticipated by Islam '006 (U.S. Patent No. 6,374, 006) (Outstanding Office Action, numbered paragraph 8). The Examiner references Fig. 2 of Islam '006, and cites certain reference numerals, namely, reference numerals 26, 28, 30 and 50. Fig. 2 of Islam '006 does not include such reference numbers and shows a "3-port optical circulator" (Islam '006, column 4, lines 1-2). During the brief telephonic communication of September 22, 2003 between the Examiner and the undersigned wherein the undersigned requested a copy of the Chang reference, the Examiner noted that a mistake had probably been made in the outstanding Office Action and that it was intended to apply Islam '393 (U.S. Patent No. 6,052,393) to claims 1-10. Accordingly, Islam '393 has been considered.

Claim 1 is amended to recite that the second fiber "comprises a loop" and to further recite (for clear illustration ~~strikeout~~ and underline is not shown) "said *loop* of said second fiber comprising a fiber Bragg grating capable of substantially reflecting energy at a predetermined wavelength"

No new matter is added. Support is found for the amendment throughout the specification and claims. For example, reference is made to claim 2, now cancelled, and to FIGURES 1 and 2.

Fig. 2 of Islam '393 fails to show each and every limitation of the invention as claimed in amended claim 1. For example, Fig. 2 of Islam, cited by the Examiner, fails to show any grating whatsoever. It is noted that Fig. 5 of Islam '393, discussed in conjunction with Fig. 2 at column 12, lines 49-57 of Islam '393, fails to show a second fiber comprising a loop, where the loop comprises a grating as recited in amended claim 1. Accordingly, Islam fails to anticipate, or teach or suggest, the invention recited by amended claim 1.

Claim 2 is cancelled. Claims 3 - 10 depend, directly or indirectly, from claim 1, and hence Islam '393 fails to anticipate, or teach or suggest, the invention recited in claims 3-10, at least for reasons discussed above regarding claim 1.

It is noted that certain amendments made to claim 1 are not made for reasons related to patentability. Claim 1, before the present amendment, recites that "the first fiber is devoid of a fiber Bragg grating *capable of* substantially reflecting energy at the predetermined wavelength." Claim 1 is amended to redact "capable of" so as to preclude an argument from one inclined to unauthorized copying of the invention that providing a "dummy" grating in the first fiber, that is, a grating that reflects no energy at the predetermined wavelength but that is "capable of" reflecting energy at the predetermined wavelength, allows appropriation of the invention while technically remaining outside the literal scope of the claim. The Applicant is not admitting that such an argument is meritorious (it is not so considered), only acknowledging and addressing the reality that aggressive copyists could make such an argument, and accordingly moving to foreclose the argument.

Accordingly, claim 1 is amended as follows: "wherein the first fiber is devoid of a fiber Bragg grating ~~capable of~~ substantially reflecting energy at the predetermined wavelength. "

Claims 11-28

Claims 11-28 are rejected under § 103(a) as obvious over Islam '393 in view of Chang et al. Claims 11 - 20 depend, directly or indirectly, from Claim 1, and hence include the limitations thereof.

Chang fails to remedy the defect noted in Islam '393 regarding amended claim 1, and in fact Chang et al. *teaches away* from the invention as recited in amended claim 1. Amended claim 1 recites "said loop of said second fiber comprising a fiber Bragg grating capable of substantially reflecting energy at a predetermined wavelength, wherein the first fiber is *devoid* of a fiber Bragg

grating substantially reflecting energy at the predetermined wavelength." Figure 2 of Chang et al. and the paragraph immediately below Figure 2 of Chang et al. clearly teach that the two gratings shown in Figure 2, namely, gratings 1706A and 1706B, substantially reflect the *same* wavelength, namely, 1706 nm.

Accordingly, Islam '393 and Chang et al., taken alone or in combination, fail to establish a prima facie case of obviousness of the invention as recited in claim 1, and hence of the invention as recited in claims 11-20, which depend, directly or indirectly, from claim 1. Reconsideration and withdrawal of the rejection of claims 11 - 20 is respectfully requested.

Claims 21 - 28 are also rejected under § 103(a) as unpatentable over Islam '393. (Page 7 of the outstanding Office Action). Claim 21 is independent, and claims 22-28 depend, either directly or indirectly, from claim 21.

Claim 21 recites a fiber laser system that comprises, among other limitations, "a fiber having a looped-shaped portion, a first non looped-shaped portion and a second non looped-shaped portion," and "a first fiber Bragg grating in the first non-looped shaped portion" and a second fiber Bragg grating in the second non looped-shaped portion." The Examiner relies on Figure 5 of Islam '393, which shows a fiber Bragg grating only in one non looped shaped portion and is entirely devoid of a fiber Bragg grating in the other non looped-shaped portion (it is assumed for purposes of brevity of argument, and not admitted, that Islam '393 is not otherwise defective) to assert that claim 21 is obvious. The Examiner asserts that it would be obvious to one of ordinary skill in the art to add another fiber Bragg grating to Figure 5 of Islam '393.

Reference is made to MPEP § 2143.01 and the directives to Examiners noted therein regarding suggestion or motivation to modify references. MPEP § 2143.01 states (emphasis added):

Obviousness can *only* be established by combining the teachings of the prior art to produce the claimed invention when there is *some* teaching,

suggestion, or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art.

In explaining the sort of teaching required, MPEP § 2143.03 specifically notes In Re Fine. MPEP § 2143.03 states:

In In Re Fine the claims were directed to a system for detecting and measuring minute quantities of nitrogen compounds comprising a gas chromatograph, a converter which converts nitrogen compounds into nitric oxide by combustion, and a nitric oxide detector. The primary reference disclosed a system for monitoring sulfur compounds comprising a chromatograph, combustion means and a detector, and a secondary reference taught nitric oxide detectors. The examiner and the Board asserted that it would have been within the skill of the art to substitute one type of detector for another on the system of the primary reference, however the court found there was no support or explanation of this conclusion and reversed.

The Examiner in the present case merely states that “it would have been obvious to one of ordinary skill in the art to add a second fiber Bragg grating to the system taught or suggested by Islam. The motivation for doing so would have been to provide means for creating a resonant cavity and reflecting back portions of the optical signal.” (Page 7 of the outstanding Office Action). It is respectfully submitted that there is *less* motivation to provide, from “thin air,” an additional grating to the disclosure of Figure 5 of Islam ‘393 (assuming *arguendo* and without any admission that provision of such a grating yields the invention recited in claim 21) than there was to *substitute* one detector for another in the system of In Re Fine, where the prior art apparently at least taught the *entire analogous structure* to the claimed invention, including at least some sort of detector. All that was required in In Re Fine was the mere substitution of another type of detector, taught by a secondary reference, for the detector shown. However, the invention was found to be patentable for lack of appropriate motivation to make the substitution.

Accordingly, it is respectfully submitted that Islam '393 fails to establish a *prima facie* case that claim 21 is obvious.

Claims 22 - 28 depend from claim 21, directly or indirectly, and include all the limitations of claim 21. For the reasons noted above, Islam '393 fails to establish a *prima facie* case of obviousness of claims 22 - 28.

Reconsideration and withdrawal of the rejections of claims 21 -28 is respectfully requested.

Claim 29

Claim 29 is rejected under 35 U.S.C. § 103(a) over Sorin '791 (U.S. Patent No. 5,982,791). It is respectfully submitted that Sorin '791 fails to teach or suggest the limitations of claim 29, and hence does not establish a *prima facie* argument that the invention as recited in claim 29 is obvious.

For example, claim 29 specifically recites three *pairs* of gratings. Each of the pairs is capable of substantially reflecting energy at a selected wavelength, such as, for example, wavelengths corresponding to specifically recited Stoke shift energies.

Sorin '791, on the other hand, appears entirely unconcerned with *pairs of* gratings at all, let alone gratings reflecting energy at wavelengths corresponding to particular orders of Stoke shifted energy. Perusal of the section of Sorin '791 cited by the Examiner, namely, column 6, lines 33 -50, reveals that the six FBG's depicted in Fig. 3 of Sorin '791 "all have different target wavelengths," that is, they reflect different wavelengths (Sorin '791 at column 6, lines 38-39).

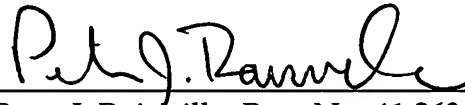
Furthermore, a word search using LEXIS of the text of the '791 revealed **no** uses whatsoever of the term "Stoke" in Sorin '791. As stated at "Summary of the Invention" section of Sorin '791 (column 3, lines 12 - 14): "The invention is a system and method for adjusting a tunable fiber Bragg grating in response to fluctuations in the wavelength of an optical carrier."

Reconsideration and withdrawal of the rejection of claim 29 is respectfully requested, as it is respectfully submitted that Sorin '791 fails to establish a prima facie case of obviousness of claim 29.

CONCLUSION

This Response and Amendment attends to all matters raised in the outstanding Office Action. The application is deemed to be in condition for allowance, and reconsideration and withdrawal of the rejections to the claims is respectfully requested.

Please do not hesitate to contact the undersigned at the telephone number or email address provided below if such communication can expedite prosecution of the pending application in any way.



Peter J. Rainville, Reg. No. 41,263

Nufern

7 Airport Park Road

East Granby, CT 06026

860-408-5022 (phone)

860-408-5080 (fax)

prainville@nufern.com